In the claims:

For the Examiner's convenience, all pending claims are presented below with changes shown.

1. (Previously Presented) An apparatus removing heat from a heat generating component, said apparatus comprising:

a heat pipe comprising an evaporator portion and a condenser portion, said heat generating component being thermally coupled to said evaporator portion;

an air duct comprising a housing having internal fins and a clamp, said air duct directing an air flow from an inlet port located near the center of said air duct to first and second exit ports located at opposite end portions of said air duct, said condenser portion of said heat pipe being attached to said housing via said clamp; and

an air flow generator coupled to said inlet port for producing said air flow.

2. (Original) The apparatus of claim 1 wherein said heat generating component comprises an integrated circuit.

3. (Original) The apparatus of claim 1 wherein said housing comprises a first plate and a second plate having respective first and second internal surfaces, said first internal surface having a first array of protruding members that constitute said internal fins.

4. (Original) The apparatus of claim 1 wherein said housing comprises a first plate and a second plate having respective first and second internal surfaces, said first internal

surface having a first array of protruding members, said second internal surface having a second array of protruding members wherein said first and second array of protruding members constitute said internal fins.

5. (Original) The apparatus of claim 1 wherein said housing comprises a material having a high thermal conductivity.

6. (Original) The apparatus of claim 1 wherein said housing comprises aluminum.

7. (Original) The apparatus of claim 1 wherein said air flow generator comprises a fan.

8. (Original) The apparatus of claim 1 wherein said air flow generator comprises a resonate cantilever vibrator.

9. (Previously Presented) An apparatus cooling an integrated circuit package assembly located within a portable computer chassis, said apparatus comprising:
a heat exchanger comprising:

an air duct having a thin cross-section relative to the width of said duct, said air duct comprising a housing having first and second major internal surfaces, an array of fins disposed between said first and second surfaces, and a clamp, said housing further comprising an inlet port disposed at or near a center portion of said air duct and first and second exit ports disposed at respective opposite first and second end portions of said duct; and

an air flow generator coupled to said inlet port for producing a first and a second air flow, said first air flow being directed from said inlet port to said first exit port, said second air flow being directed from said inlet port to said second exit port;

a heat pipe having an evaporator portion and a condenser portion, said integrated circuit package being thermally coupled to said evaporator portion; said condenser portion being coupled to said housing of said air duct via the clamp.

10. (Original) The apparatus of claim 9 wherein said fins comprise integrally formed protruding members along said first internal surface.

11. (Original) The apparatus of claim 9 wherein said fins comprise a first and second array of protuberances integrally formed along said first and second internal surfaces, respectively.

12. (Original) The apparatus of claim 9 wherein said housing comprises a material having a high thermal conductivity.

13. (Original) The apparatus of claim 9 wherein said housing comprises aluminum.

14. (Original) The apparatus of claim 9 wherein said air flow generator comprises a fan.

15. (Original) The apparatus of claim 9 wherein said air flow generator comprises a resonate cantilever vibrator.

16. (Previously Presented) A portable computer comprising:

an enclosure having an air duct comprising a housing having internal fins and a clamp, said air duct directing an air flow from an inlet port located near the center of said air duct to first and second exit ports located adjacent opposite end portions of said air duct, said air duct having a substantially equal width as said enclosure, said enclosure comprising first, second and third sides;

an air flow generator coupled to said inlet port for producing said air flow; and

heat transfer means thermally coupling a heat generating component located within said enclosure to said air duct housing, said heat transfer means being coupled to said housing of said air duct via the clamp.

17. (Original) The portable computer of claim 16 wherein said first and second exit ports face said first side such that said air flow leaves said enclosure from said first side.

18. (Original) The portable computer of claim 16 wherein said first and second exit ports face said second and third sides, respectively, such that said air flow leaves said enclosure from said second and third sides.

19. (Currently Amended) A method for cooling a heat generating component located within an enclosed compartment, said method comprising:

thermally coupling said heat generating component to the housing of an air duct having a thin cross-section relative to the width of said air duct, including:

thermally coupling said component to an evaporator portion of a heat pipe; and

thermally coupling a condenser portion of said heat pipe to said air duct housing, said condenser portion of said heat pipe being physically coupled to said housing of said air duct via ~~the~~ a clamp; and

producing an air flow through said air duct by directing air external to said compartment into an inlet port located at or near the center of said air duct and splitting said air flow into a first air flow and a second air flow, said first air flow being directed to a first exit port located at a first end portion of said air duct, said second air flow being directed to a second exit port located at a second end portion of said air duct.

20. (Previously Presented) An apparatus comprising:

a heat pipe comprising an evaporator portion and a condenser portion, said heat pipe coupled to a heat generating component at the evaporator portion of the heat pipe;

an air duct comprising a housing, said air duct directing an air flow from an inlet port, located at or near a middle of the air duct, to a first and second exit port located at opposite ends of the air duct, said air duct coupled to the condenser portion of said heat pipe via a clamp mounted on the housing; and

an air flow generator coupled to said inlet port to produce the air flow.

21. (Original) The apparatus of claim 20 wherein said heat generating component is an integrated circuit.

22. (Original) The apparatus of claim 20 wherein said housing comprises a first plate and a second plate having respective first and second internal surfaces, said first internal surface having a first array of protruding members that constitute internal fins.

23. (Original) The apparatus of claim 20 wherein said housing comprises a first plate and a second plate having respective first and second internal surfaces, said first internal surface having a first array of protruding members, said second internal surface having a second array of protruding members wherein said first and second array of protruding members constitute internal fins.

24. (Original) The apparatus of claim 20 wherein said housing comprises a material having a high thermal conductivity.

25. (Original) The apparatus of claim 20 wherein said housing comprises aluminum.

26. (Original) The apparatus of claim 20 wherein said air flow generator is a fan.

27. (Original) The apparatus of claim 20 wherein said air flow generator is a resonate cantilever vibrator.

28. (Previously Presented) A heat exchanger comprising:

an air duct having a housing including an inlet port located at or near a middle of the air duct, a clamp and a first and second opposing exit ports;

an air flow generator coupled to the inlet port to produce an air flow, the air flow being directed from the inlet port to the exit port;

a heat pipe having an evaporator portion and a condenser portion, the evaporator portion coupled to an integrated circuit package, and the condenser portion being coupled to the air duct via the clamp.

29. (Original) The heat exchanger of claim 28 wherein the air duct includes fins protruding along an internal surface.

30. (Previously Presented) The heat exchanger of claim 29 wherein the fins include a first and second array of protuberances integrally formed along a first and second internal surfaces of the air duct, respectively.

31. (Original) The heat exchanger of claim 28 wherein the air duct includes a material having a high thermal conductivity.

32. (Original) The heat exchanger of claim 28 wherein the air duct comprises aluminum.

33. (Canceled)

34. (Canceled)

35. (Previously Presented) A system comprising:

an air duct housing having an inlet port located at or near a middle of the air duct, a clamp and a first and second exit port located at opposite ends of the air duct;

an air flow generator coupled to the inlet port to produce an air flow; and

heat pipe coupling a heat generating component to the air duct housing via the clamp.

36. (Currently Amended) A method comprising:

thermally coupling a heat generating component to a housing of an air duct;

thermally coupling the component to an evaporator portion of a heat pipe, and thermally coupling a condenser portion of the heat pipe to the air duct housing, said condenser portion of said heat pipe being physically coupled to said housing of said air duct via ~~the~~ a clamp; and

producing an air flow through the air duct by directing air external into an inlet port located at or near a center point in the air duct and splitting said air flow into a first air flow and a second air flow, said first air flow being directed to a first exit port located at a first end of the air duct, said second air flow being directed to a second exit port located at a second end of the air duct opposing the first end.

37. (Previously Presented) An apparatus comprising:

a heat pipe to be coupled to a heat generating component;

an air duct comprising a housing having internal fins, said air duct directing an air flow from an inlet port positioned at a central point of the air duct, to first and second exit ports located at opposite end portions of said air duct, the housing coupled to the heat pipe via a clamp; and

an air flow generator coupled to the inlet port to produce air flow.

38. (Original) The apparatus of claim 37 wherein the heat generating component is an integrated circuit.

39. (Previously Presented) The apparatus of claim 37 wherein the housing includes a first plate and a second plate having respective first and second internal surfaces, the first internal surface having a first array of protruding members that constitute internal fins.

40. (Previously Presented) The apparatus of claim 37 wherein the housing includes a first plate and a second plate having respective first and second internal surfaces, the first internal surface having a first array of protruding members, the second internal surface having a second array of protruding members wherein the first and second array of protruding members constitute internal fins.

41. (Previously Presented) The apparatus of claim 37 wherein the housing includes a material having a high thermal conductivity.

42. (Previously Presented) The apparatus of claim 37 wherein the housing comprises aluminum.

43. (Canceled)

44. (Canceled)

45. (Previously Presented) A heat exchanger comprising:

an air duct having an inlet port situated at a central point of the air duct, first and second exit ports disposed at respective opposite first and second end portions of said duct, and a clamp; and

an air flow generator coupled to said inlet port to produce a first and a second air flow, said first air flow being directed from said inlet port to said first exit port, said second air flow being directed from said inlet port to said second exit port;

a heat pipe coupled to the housing of the air duct via the clamp.

46. (Original) The heat exchanger of claim 45 wherein the air duct include fins protruding along a first internal surface.

47. (Original) The heat exchanger of claim 45 wherein the housing comprises a material having a high thermal conductivity.

48. (Original) The heat exchanger of claim 45 wherein the housing comprises aluminum.

49. (Canceled)

50. (Canceled)

51. (Canceled)

52. (Currently Amended) A method comprising:

thermally coupling a heat generating component to an air duct;

thermally coupling the component to a heat pipe, and thermally coupling the heat pipe to the air duct said heat pipe being physically coupled to said housing of said air duct via a ~~the~~ clamp; and

producing an air flowthrough the air duct by directing air external to the air duct into an inlet port situated at a central point of the air duct ,and splitting the air flow into a first air flow and a second air flow, said first air flow being directed to a first exit port located at a first end portion of said air duct, said second air flow being directed to a second exit port located at a second end portion of said air duct.